

Research and Outreach in Integrated Pest Management for Bed bugs in New York and Beyond.

Project Leaders:

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Cooperators:

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Abstract:

Bed bugs are a serious burgeoning problem in homes, hotels, dormitories, schools, and other living facilities throughout the United States and worldwide. The IPM Program has addressed the problem locally, regionally, and nationally in several ways in 2006. A fact sheet was written in 2003 and posted on the NYS IPM Program website. It is continuously one of the most popular pages on the site garnering just over 56,000 hits in 2006. A 2005 survey of the pest control industry was conducted with funding from the NE IPM Center. This survey characterized the bed bug problem nationally from the perspective of the pest control industry, including details about how bed bug problems are typically handled. Several articles were written and published in 2006 that describe the results of this work. A new bed bug project proposal was submitted for funding to the NEIPMC to develop management protocols and NYS IPM will be involved with yet another project involving pheromone identification and use. A professional list serve was set up in late 2006 for discussion of bed bug issues. In addition, many hours were spent in direct phone consultation with individuals faced with the daunting task of controlling bed bugs and the legal issues arising from infestations.

Background and Justification:

The common bed bug, *Cimex lectularius*, has again become a household word, a scourge, and a media craze. Over the past several years bed bugs have reemerged as a major pest problem of single family homes, apartments, hotels, dormitories, and other types of living facilities. For example, the numbers of bed bugs complaints to New York City housing agencies skyrocketed from around 1000 in 2004 to over 4,000 in 2005. There is no easy solution for a bed bugs infestation, and most experts believe that it is impossible to control them without pesticides. Many people are reverting to baseboard sprays reminiscent of cockroach problems twenty years ago. Yet, there are signs that bed bugs are becoming resistant to the main chemical tools used to control them. More importantly, controlling bed bugs requires training, experience, and absolute cooperation all of which are still lagging behind the growing problems. Efforts to address the challenges of bed bug management are being made by NYS IPM to reduce the many risks of having bed bugs, including high costs of controlling them, emotional and physical harm to those infested, and the risks of over-exposure to pesticides used to control bed bugs.

Objectives:

1. Publish and promote the results from the survey project to raise awareness about bed bugs and management.
2. Act as a resource for New York State for individuals and organizations with specific questions about bed bugs and their management.

3. Conduct lectures and trainings about bed bug management that raise the skill level of the pest control industry.
4. Seek ways to further the work to be done to learn about and manage bed bugs.

Procedures and Results:

The nationwide survey of pest control companies, conducted from April to June of 2005, was summarized and then prepared as a talk that was part of a Bed Bugs Symposium at the 2005 Entomological Society of America (ESA) Annual meeting. A poster was also presented at the April 2006 National IPM Symposium in St. Louis, MO. Following the ESA meeting, a journal article was requested by the editors of American Entomologist, and the survey was published as a separate article in the Summer 2006 volume. From there, the article was picked up in its entirety by Pest Control Technology magazine, November 2006 issue. Additionally, a summarized version was written to be published in the newsletter of the NY State Pest management Association. From there the summary article was also published in the pest management association newsletters in New Jersey and Pennsylvania.

NYS IPM specialists continue to field questions and requests for more information from the public about bed bugs, which mainly come from urban parts of New York State, especially but not limited to the New York City region. In 2006, more than 30 calls were taken from individuals with questions and discussions about bed bugs, totaling over 11 hours. Many other questions were answered through email. One bed bug situation involved a Syracuse-area homeless shelter that was infested and needed help. NYSIPM helped shelter staff to develop draft protocols for admitting and discharging guests to help reduce the chances of getting and spreading bed bugs. The shelter also eliminated wood framed beds in favor of more sterile metal frames and attempted to use other IPM techniques.

In 2006, NYS IPM conducted three formal bed bugs training sessions with approximately 300 attendees. One session was conducted for the employees of a large pest control company on Long Island. There were more than 75 audience members. Another presentation was made to the New York Entomological Society for a monthly lecture series held at the American Museum of Natural History in New York City. The audience varied from academics and researchers to pest management professionals to the interested public. The National IPM Symposium poster presentation had many visitors and incited discussion throughout the session. A NYS IPM staff member appeared on a local radio question and answer session on WHCU in Ithaca to discuss bed bugs with the show's host. Lastly, a two-hour training workshop was conducted for the New Hampshire Department of Agriculture for pesticide recertification training credits. About 150 pest control professionals were trained in the identification, detection, inspection, evaluation and treatment of bed bug problems. This session included ways to use IPM for bed bugs, and highlighted safe pesticide use for bed bug elimination. Two major proposals were submitted for funding for bed bugs research and demonstrations. One project is designed to use demonstration of bed bug management techniques to develop working protocols for management in long-term homeless shelters or other forms of low-income temporary housing. The project will investigate which combinations of techniques work well and provides the project leaders with opportunities to test alternative management techniques, such as heat and steam. The deliverables of this project include several protocols to be used by shelters for taking in guests, discharging guests, and mitigating the spread of bed bugs within a shelter. The last will ideally be a protocol that is applicable to other multiple-unit dwellings, such as apartments. A second project idea is to characterize the aggregation pheromone of bed bugs, and this was undertaken by well-known pheromone scientists at Cornell

University. NYS IPM will provide field expertise when the time comes to test the attractiveness of the pheromone in a real infestation. Finally in late 2006, a list serve was set up at Cornell University to link bed bug experts in a discussion about bed bug management and research. NYS IPM specialists also participate in other lists and networks to learn about and discuss bed bugs.

Currently, bed bug problems are on the rise nationwide. There appears to be a lag in technology and experience available to the pest control industry, but many are trying to catch up. NYS IPM is involved in bed bug research, outreach, discussion, and education and this allows specialists to train pest control professionals with the latest information. All those involved with bed bugs are united in a common goal of finding the most effective problem solving tools and techniques that are safe and cost effective. Households suffering with bed bugs will benefit from outreach and research by learning ways to manage and control them without throwing away all their possessions, as is common today. The pest control industry has been revitalized by the source of bed bugs, but some companies are facing risks when doing the work. Risks include callbacks, due to reinfestation from possibly unknown sources and from a lack of cooperation, plus companies face risks to their reputations and finances when bed bug control fails. Better technology and protocols are desperately needed. Research on bed bug management tools, including the potential for pheromone traps, has the potential to revolutionize management and monitoring strategies.

Project locations:

New York City, New York State, New Hampshire, New Jersey, Pennsylvania, Northeast region, United States (publications were available nationally and internationally).

Samples of resources developed:

There is a 2 hour bed bug training slide set that was developed for the audience in New Hampshire. This is available to extension staff.

Original photograph taken of a bed bug mailed to NYS IPM:

